April 8, 1924. 1,489,803

W. N. VANCE

METAL BOX

Filed June 5, 1919 3 Sheets-Sheet 1

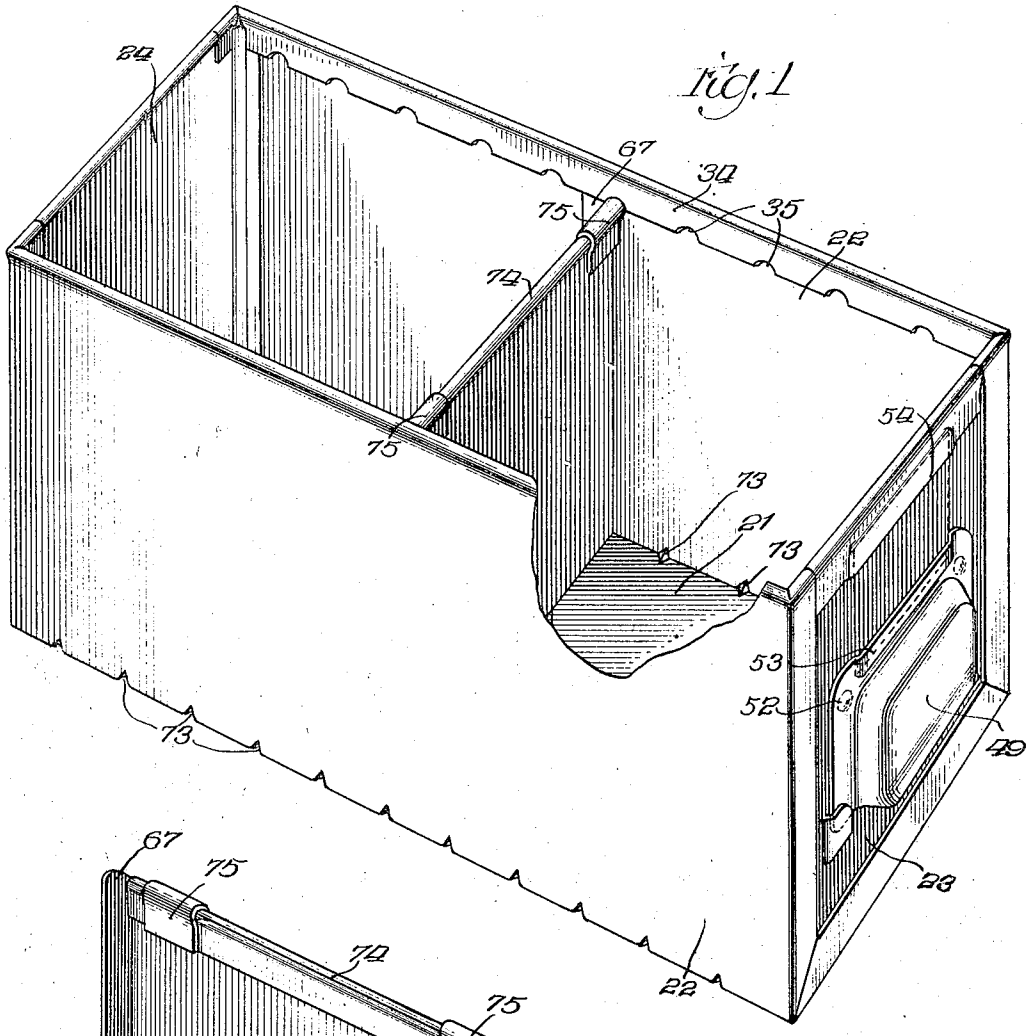


Fig. 1

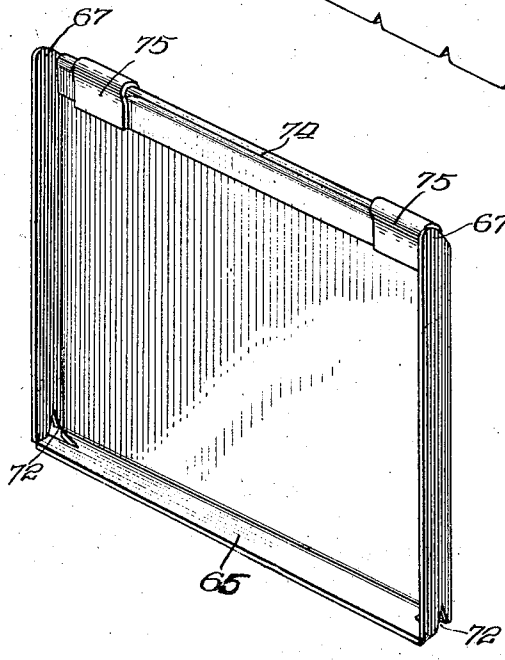


Fig. 2

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Fig. 3

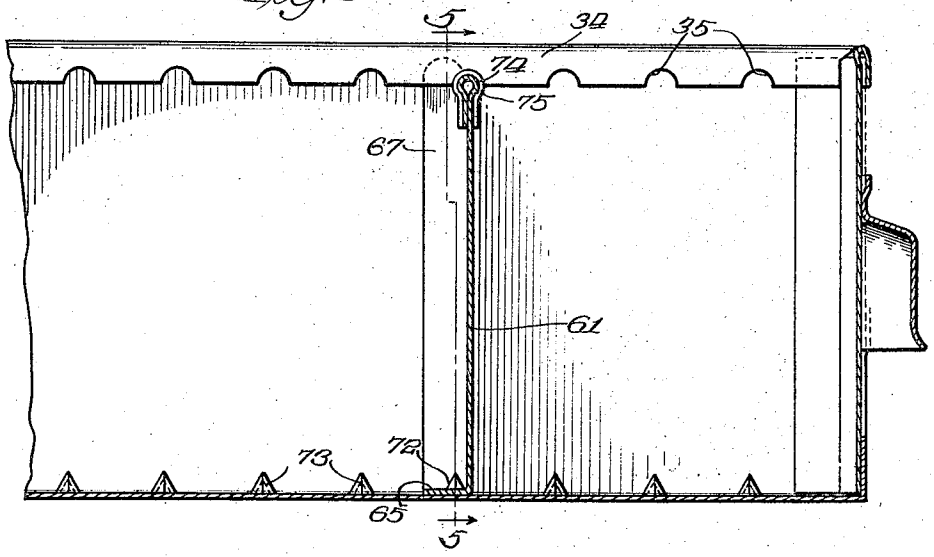


Fig. 4

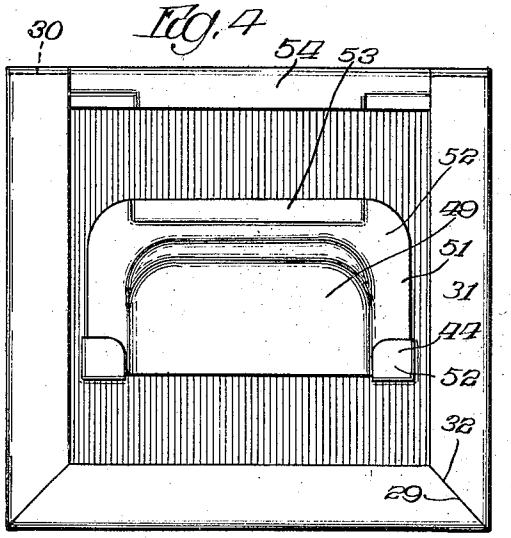


Fig. 5

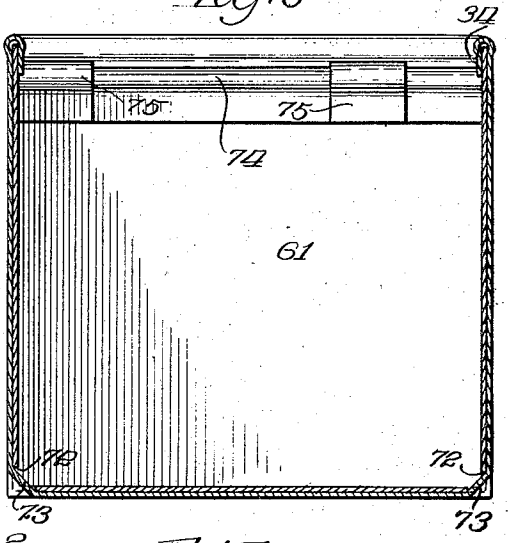


Fig. 6

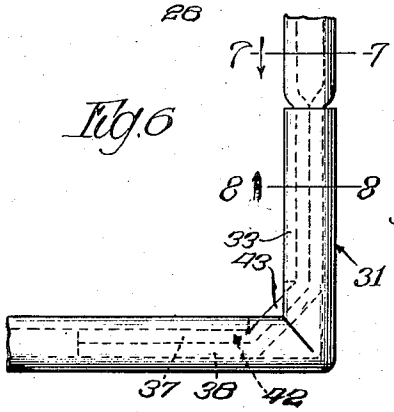


Fig. 8

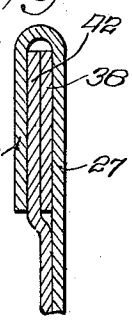
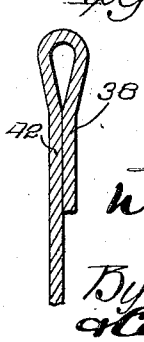


Fig. 7.



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METAL BOX

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Fig. 9

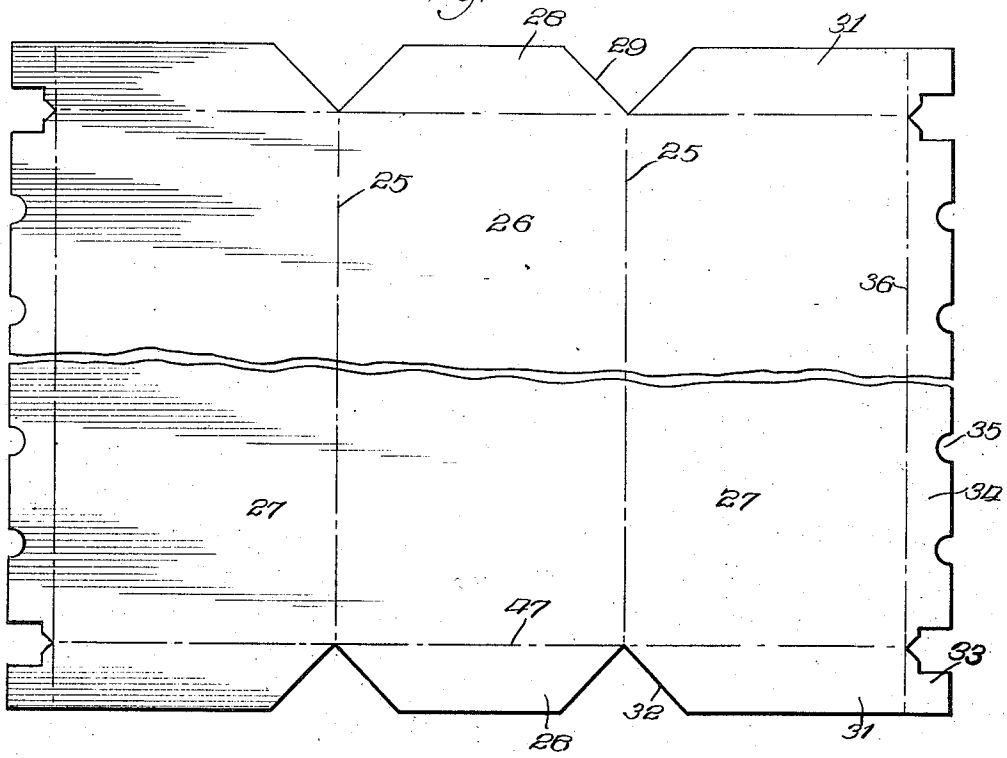


Fig. 10

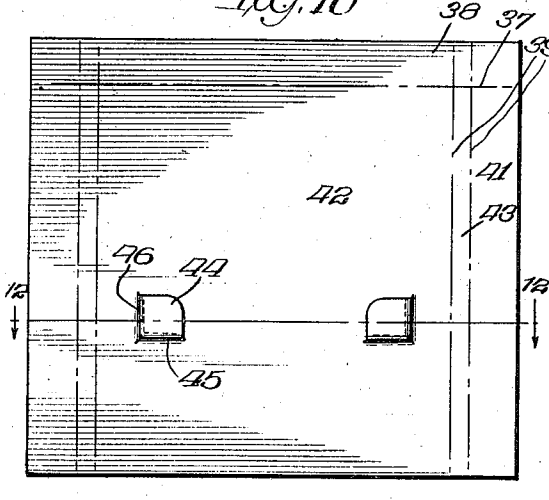


Fig. 11

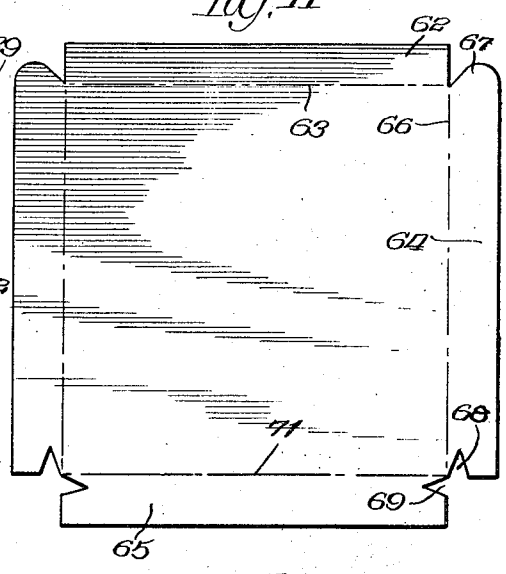
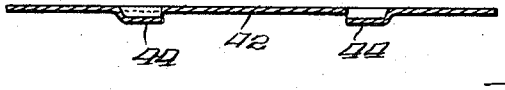


Fig. 12



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Patented Apr. 8, 1924. 1,489,803

UNITED STATES PATENT OFFICE.

WALTER N. VANCE, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR TO DURAND STEEL LOCKER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

METAL BOX.

Application filed June 5, 1919. Serial No. 301,985.

To all whom it may concern:

Be it known that I, WALTER N. VANCE, a citizen of the United States, residing in Chicago Heights, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Metal Boxes, of which the following is a specification.

This invention relates in general to boxes, and has more particular reference to boxes of the character of shelf boxes and the like.

The invention has for one of its important and principal objects the provision of an extremely strong and rigid metal box of relatively light sheet material.

Another important object of the invention is the provision of a box of this character particularly adapted for use as a shelf box, in which a partition or a number of partitions may be easily positioned in desired locations and removed or relocated as occasion may require.

Another important object of the invention is the provision of a partition of this kind which will effectively separate the desired spaces within the box and which will have no opportunity to become dislodged or lifted above the bottom of the box.

Another object of the invention is the improvement of boxes of this character in numerous other respects, as for example the provision of improved means for holding a label in place, improved means providing a hand-hold or handle upon the box and in other respects as will be later apparent.

While the invention is hereinafter described as embodied in a shelf box, it will be apparent that it is capable of embodiment in structures for other uses.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description when considered in connection with the accompanying drawing illustrating a preferred embodiment thereof.

On the drawing,

Figure 1 is a perspective view of a shelf box embodying my invention;

Fig. 2 is a perspective view of a partition with which the box may be provided;

Fig. 3 is a partial longitudinal sectional view of a box;

Fig. 4 is an end elevation thereof;

Fig. 5 is a section taken substantially on the line 5—5 of Fig. 3;

Fig. 6 is an enlarged plan view of a box corner showing the connection of an end and side wall;

Fig. 7 is a section taken substantially on the line 7—7 of Fig. 6;

Fig. 8 is a section taken substantially on the line 8—8 of Fig. 6;

Fig. 9 is a plan view of a blank adapted for the formation of such box;

Fig. 10 is a view of a blank ready to be formed into the end of the box;

Fig. 11 is a plan view of the blank for forming the partition; and

Fig. 12 is a section taken on the line 12—12 of Fig. 10.

For the purpose of illustrating my invention I have shown on the drawings a shelf box of the character used in hardware stores, stock and supply rooms, and other places where heavy articles are stored, although it will be manifest that the invention has other uses.

The box shown on the drawing comprises a bottom 21, two side walls 22 and front and rear end walls 23 and 24. The sides and bottom walls are preferably constructed from a single blank as indicated in Fig. 9, from which it will be noted that two score lines 25 extend across the blank to divide it into the central part 26, which in the finished structure forms the bottom and the two end portions 27 for forming the side walls. At each end the part 26 is provided with flaps or flanges 28 having mitred edges 29 and flaps or flanges 31 are also provided upon the ends of the parts 27 and these flaps or flanges have mitred edges 32 adjacent the flaps or flanges 28. At the corners of the box the flaps or flanges 31 are extended out into tongues 33 for a purpose to be presently described.

At each end the blank is provided with an end flange 34, which is recessed at intervals as at 35 and is adapted to be bent back upon a line of bend 36 at the top edge of each side wall into parallelism but spaced from the body of the side wall. The two end walls are formed of blanks as shown in Figs. 10 and 12, which blanks are merely rectangular metal sheets having a

line of bend 37 near the top, the part 38 above the bend being bent over to form a reinforcing edge flange and the blanks having two lines of bend 39 at each side, the parts 41 beyond the outermost line of bend being disposed at right angles with the plane of the body 42 of the end in the finished structure and connected therewith by an inclined or angularly disposed portion 43 between the two lines 39. The front wall is preferably also provided with pressed out lips 44 connected at two sides 45 and 46 with the body and for receiving the flanges of a hand-hold as will be later described.

In assembling the box the main or larger blank is first bent on the lines of bend 36 to dispose the flanges 34 substantially parallel to the bodies of the side walls. Then the blank is bent on the lines of fold 47 to dispose the flaps or flanges 28 and 31 at right angles to the body of the blank and then upon the fold lines 25. The blank of Fig. 10 is bent first on the fold line 37. The ends of this bend are then cut out as indicated at 30 in Fig. 4 (the top edges are cut away at the corners to permit the assembled structure to provide an even top edge) and the end blank is then bent on the fold lines 39 as already described. The ends are inserted behind the flaps or flanges 28 and 31 of the body blank with the upper ends of the parts 41 behind the adjacent ends of the flanges 34. Spot welding is preferably provided where the flaps or flanges 28 and 31 engage the outer faces of the front and rear end walls and also where the side walls are engaged by the parts 41 of the end blank.

It will be noted that the parts 43 between the lines of fold 39 of the ends extend across the vertical corners of the box and serve as reinforcing or stiffening members and also that the fold-over parts 38 extend around the corners and within the folds 34. The extensions 33 are also bent down and are spot welded if desired.

The corner construction is perhaps best shown in Figs. 6 and 8, from which it will be noted that a double fold is provided about the corners at the top and this by the bending over of the flanges of the two connected walls and disposing one of the bent-over edges within the other. The mitred edges 32 and 29 of the side flanges come substantially into contact as indicated in Fig. 4 so that the flaps or flanges 28 and 31 extend substantially completely about the sides and bottoms of the ends.

The hand-hold 49 having a marginal flap 51 extending about the sides and top is engaged by having this flap disposed behind the struck-up lips 44 and is spot welded in place if desired at 52.

The upper part of this flange may be bent out at 53 as indicated on the drawing to receive the lower edge of a label and a companion recess may be provided at 54 behind the fold-over part 38 of the front end.

I provide a partition 61 which may be placed at any desired location in the box and readily shifted from one location to the other. This partition consists of a sheet of metal formed from a blank as indicated in Fig. 11, having a top flap or flange 62 adapted to fold over on a line of folds 63 and having also side flanges or flaps 64. The side flanges or flaps 64 are adapted to be bent to a right angle position about lines of bend 66 and have at their top upwardly projecting parts 67. At the bottom a V-cut is provided at 68 and a similar cut 69 is provided at each end of a bottom flange 65, which in the finished partition is also bent at right angles to the body of the partition and upon a line of bend 71. The two notches 68 and 69 form recesses 72 at the lower corners in the flanges and it is intended that these recesses may be engaged by projections 73 arranged at intervals along the line of joint between the side and bottom walls, which projections have the further function of stiffening and reinforcing the structure of the box body. The projections 73 are provided by pressing in the material of the body of the box as may be seen on viewing Fig. 1 and are arranged in pairs, the members of each are located on opposite sides so that any pair of members may enter into the openings or recesses 72 in the bottom of the partition. The upwardly extending parts 67 are adapted for insertion behind the turned over flanges or flaps 34 of the side walls and the recesses 35 already mentioned are located directly above the projections 73 so that the upper edge 74 of the partition may enter these recesses to permit the projections 73 to be engaged into and disengaged from the openings 72, already described.

When the partition is to be positioned it is inserted within the box in inclined and slightly twisted relation and then turned to bring the projections 67 back of the flanges 34 with the upper edge 74 of the partition disposed in a pair of recesses 35 from which position the partition may swing to vertical arrangement and be pushed down to engage the projections 73 and the recesses 72. In order to lock the partition in this position and to maintain this engagement I provide locking devices or slides 75 upon the upper edge of the partition, which locking devices in the present instance consist merely of metal strips bent about the upper edge and slidable thereon. The parts are preferably positioned so that these members slide slightly beneath the flanges 34 and into the recesses 35, pressing the partition tightly against the bottom. This insures against the inadvertent disengagement of the pro-

jections 73 from the recesses 72 and maintains also the bottom flange 65 of the partition in tight contact with the bottom wall 21 of the box.

The structure just described permits a ready shifting of the partition from one location to another and the insertion and removal of additional partitions as occasion may render desirable.

The box is of extremely rigid construction and when made of light metal does not readily twist from its normal desired rectangular construction.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A box and partition therefor, said box having ribs extending diagonally across the joint between the bottom and sides for engaging the lower edge of the partition, and means for holding said partition above said ribs.

2. A box and partition therefor, said box having integral projections at its bottom and said partition having recesses for receiving said projections, and means integral with the box for engaging the partition above said projections.

3. A box and detachable partition therefor, said box having integral projections for engaging upon the top and bottom of the partition for holding it in place.

4. A box and partition therefor, said box comprising a sheet metal body having joined side and bottom walls, the material of said body at the line of joint between a wall and bottom being pressed inwardly for engagement with the partition.

5. A box and partition therefor, said box comprising a sheet metal body having joined side and bottom walls, the material of said body at the line of joint between a wall and the bottom being pressed inwardly at a plurality of points to provide for an adjustable engagement with said partition.

6. A box and partition therefor, said box having parts for engaging in recesses at the bottom of said partition, and overhanging recesses at the top for engaging the top of said partition.

7. A box and partition therefor, said box comprising integral means below its top for engaging in recesses at the bottom of the partition to hold it in place, and said box having overhanging flanges at the top and the partition projections engaging behind said flanges.

8. A box and partition therefor, said box having overhanging flanges at the top and said partition having side flanges angularly disposed with respect to the body of the partition for engaging behind the overhanging flanges of the box.

9. A box and partition therefor, said box having overhanging flanges at the top behind which the partition engages, and locking means for locking said partition to said box in immovable position.

10. A box and partition therefor, said box having means for engaging the partition, projections on the partition for engaging said means, and locking devices carried by the partition for locking said partition in place.

11. A box and partition therefor, said box comprising overhanging flanges at the top and said partition having parts engaging behind said flanges, and locking means connecting said flanges and the body of said partition.

12. A box and partition therefor, said box comprising overhanging flanges at the top and said partition having parts engaging behind said flanges, and locking means carried by the partition for engaging said flanges.

13. A box and partition therefor, said box comprising overhanging flanges having a plurality of sets of recesses in their edges, and slidable means on the top of the partition for engaging in said recesses to lock the partition in place.

14. A box and partition therefor, said box having means in its bottom for engagement with the partition to which the lower edge of the partition is engageable with a vertical movement, and moving means carried by the partition for engaging the said walls of the box to lock the partition against said vertical movement.

15. A box and partition therefor, said box comprising means engageable by the partition upon tilting of the partition, and other means engageable by the partition upon a vertical movement after the engagement by the first mentioned means.

16. A box and partition therefor, said box comprising means engageable by the partition upon tilting of the partition, and other means engageable by the partition upon a vertical movement after the engagement by the first mentioned means, and devices for locking said partition against said vertical movement to hold it when said partition is in place.

WALTER N. VANCE.